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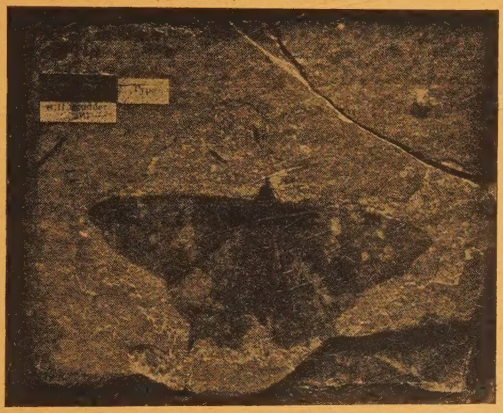

Prodryas persephone Scudder.

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PSYCHE

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A LIST OF THE ORTHOPTERA OF NEW ENGLAND.

By Albert P. Morse,
Wellesley College, Wellesley, Mass.

Eighteen years ago Mr. S. H. Scudder published in this journal a briefly annotated list of the Orthoptera of New England (Psyche, Vol. 9, September, 1900, pp. 99–106) enumerating 98 species, and on page 119 following added six more from data supplied by Mr. Samuel Henshaw.

Since that date much work has been done upon the group, greatly increasing the number of species known from New England and changing their scientific nomenclature. In a Manual of the New England Orthoptera soon to be published I have enumerated 130 species from the district. The following list is intended to serve as a short memorandum of these.

Order DERMAPTERA,—Earwigs.

1. Maritime Earwig, *Anisolabis maritima* Géné.

Nearly cosmopolitan. Introduced and established at various points on our seabord, living as a scavenger among the shingle and sea-wrack at or near highwater mark. Hibernates as an adult. Eggs laid in summer. Reported from Maine, Massachusetts, Rhode Island, and Connecticut.

2. Ring-legged Earwig, *Euborellia annulipes* Lucas.

Introduced. Taken in slaughter-house at Brighton, Mass., Feb. 1909 (A. P. M.), and by Walden among shipments of plants in Connecticut.

3. Little Earwig, *Labia minor* Linné.

Generally distributed and probably occurs in small numbers throughout New England. Has been captured from May 25 to Nov. 4 under various circumstances, in gardens, manure-heaps, and fungi. Nocturnal, flying at dusk, and to lights in evening.

4. Brown Earwig, *Prolabia arachidis* Yersin.

Introduced. Taken in sugar refinery at Boston in 1889 (Henshaw) and in Brighton slaughter-house, Feb. 1909 (A. P. M.). In New England occurs only under artificial conditions.

5. European Earwig, *Forficula auricularia* Linné.

Introduced from Europe. Established at Newport, R. I., and vicinity. Has been taken also at Kingston, R. I., and in brown-tail moth nests imported with parasites at Melrose, Mass.

6. *Spandex percheron* Guerin et Percheron.

One example of this species (t. Hebard, Notes, Entom. news, xxviii, 323, 1917) is recorded from New England. The record is based on a badly mutilated specimen in the Harris collection, taken in Boston or vicinity, which was described as new by Scudder under the name of *Spongophora bipunctata* (Boston journ. nat. hist., vii, 415, 1862).

Order ORTHOPTERA, Family BLATTIDÆ, Cockroaches.

Native Species (*Ischnoptera* auct.).

7. Common, or Northern, Wood-Roach, *Parcoblatta virginica* Brunner.

Common under bark, boards, stones, etc., in June and July, less so in August. Males fly freely to light; females are wingless. Orono, Me., Hartland, Vt., and southward.

8. Uhler's Wood-Roach, *Parcoblatta uhleriana* Saussure.

Much less common than the preceding but frequently seen in eastern Massachusetts and recorded from Marthas Vineyard and Connecticut. Habits and seasons same as preceding.

9. Pennsylvanian Wood-Roach, *Parcoblatta pensylvanica* DeGeer.

Scarce or rare in eastern New England, locally plentiful on shore of Lake Champlain. Found under boards and stones from June 5 to October. Recorded from Prout's Neck, Maine, Sherborn and Winthrop, Mass., Mt. Carmel, Ct., South Hero, Vt.

10. Broad Wood-Roach, *Parcoblatta lata* Brunner.

Adventive from further south. One example taken at Wellesley, Mass., July 13, 1916, in dwelling-house (A. P. M.).

Introduced Species which have established themselves for longer or shorter periods.

11. German Roach, Croton-bug, *Blattella germanica* Linné.

Domiciliary. Probably occurs throughout New England under artificial conditions of constant heat, moisture, and food, in houses, shops, etc. Adults and young at all seasons. Locally abundant if not checked.

12. Oriental Roach, *Blatta orientalis* Linné.

Much less common than the preceding; found under the same conditions.

13. American Roach, *Periplaneta americana* Linné.

Locally plentiful under the same conditions as the preceding but less generally established. Our largest common roach.

14. Australian Roach, *Periplaneta australasiæ* Fabricius.

Occasionally becomes established in greenhouses, etc. Taken in Maine, Massachusetts, and Connecticut.

15. Surinam Roach, *Pycnoscelus surinamensis* Linné.

Remarks under preceding apply equally well to this. Recorded from Massachusetts and Connecticut.

Exotic species from West Indies, Central or South America, introduced with tropical fruit; adventive, liable to occur at any time or in any place where such merchandise is unpacked.

16. *Nyctibora lævigata* Beauvois ("*sericea*" of authors).

Female, Orono, Me., May 16, 1889, bananas (Me. exp. sta.). Female, Manchester, N. H. (Miss Susy C. Fogg). Male, Boston, Mass., Feb. 20, 1887 (F. H. Sprague). Natick, Mass., summer, 1901, fruit store (A. P. M.). Female, Springfield, Mass., Aug. 17, 1898 (C. Ladd). Wellesley, Mass., fall, 1899,—nymph, recorded by Scudder (List, Psyche 1900, 100) as "*Eurycotis*, possibly *finschiana* Sauss."

17. *Nyctibora noctivaga* Rehn ("*holosericea*").

Wellesley, Mass., Jan. 15, 1904, bananas; adult. Young in various stages: Dalton, Mass., Jan. 2, 1899 (E. A. Halle). Hyde Park, Mass., Oct. 1, in house (Miss M. E. Cherrington). Fram-

ingham, Mass., May 25, in store (C. A. Frost). Newtonville, Mass., June 12, 1916 (A. W. Wilcox).

18. *Eurycotis opaca* Brunner.

Female, Orono, Me., June 18, 1909 (Me. exp. sta.).

19. *Eurycotis tibialis* Hebard.

Female, Orono, Me. ? (Me. exp. sta.).

20. *Epilampra maya* Rehn.

Female, Woodstock, Vt., August, 1911 (Hugh Morgan). Female, Framingham, Mass., April 10, 1914, bananas in grocery store (C. A. Frost).

21. Green Roach, *Panchlora cubensis* Saussure.

Female, Augusta, Me., 1906 (U. S. N. M.). Orono, Me., 1892, in tropical fruit (Me. exp. sta.). Woodstock, Vt. (A. P. M.). Boston, Mass., Dec. 26, 1878, flying in store (M. C. Z.); Framingham, Mass., Aug. 1, 1914 (C. A. Frost); Melrose, Mass., June 17, 1914 (F. W. Dodge); Salem, Mass., Aug. 1, 1890, Aug. 12, 1917; Stoneham, Mass., Nov. 15, 1915 (C. V. Blackburn); Wellesley, Mass., Dec. 12, 1894, on window; Jan. 9, 1918, bananas (A. P. M.).

22. Green Roach, *Panchlora exoleta* Burmeister.

Salem, Mass., June 7, 1884, probably in bananas (Peabody Museum).

23. *Hormetica advena* Scudder.

One female, Belmont, Mass. (type). Native country unknown.

Family Phasmidæ, Walkingsticks.

24. Northern Walkingstick, *Diapheromera femorata* Say.

Not uncommon locally, usually in deciduous shrubbery, in southern New England. Known from South Bridgton, Me. (Me. exp. sta.), Manchester, N. H., and Sudbury, Vt., southward, from late August till October.

25. Blatchley's Walkingstick, *Manomera blatchleyi* Caudell.

One adult female, one immature, Greenwich, Ct., Aug. 25, 1892 (A. P. M.).

Family MANTIDAE, Praying Mantids.

26. Carolina Mantis, *Stagmomantis carolina* Johannsen.

Reported by Mr. Samuel Henshaw from Rhode Island, many years ago, through Prof. Packard. Probably adventive or introduced, as it does not naturally live within a long distance of our border.

27. Chinese Mantis, *Paratenodera sinensis* Saussure.

Introduced several times into Connecticut and Massachusetts but has not established itself.

28. European Praying Mantis, *Mantis religiosa* Linné.

Introduction of this species into Connecticut by egg-masses from the colony at Rochester, N. Y., was once attempted but they failed to hatch.

Family TETTIGONIIDÆ,—Katydids, Green Grasshoppers, Cave-crickets, etc.

29. Oblong-winged Katydid, *Amblycorypha oblongifolia* DeGeer.

Common in vines, shrubbery, and coarse weeds in Connecticut, less numerous in eastern Massachusetts, and recorded from southern New Hampshire. Mid-August to October.

30. Carinate Florida Katydid, *Amblycorypha floridana carinata* Rehn et Hebard.

Half-a-dozen examples are recorded from Nantucket and Woods Hole, Mass., and it will probably be found in Connecticut. Frequents bushes and weeds.

31. Round-winged Katydid, *Amblycorypha rotundifolia rotundifolia* Scudder.

Common in southern New England in grass and low bushes in August and September. It is reported from as far north as the White Mountain region.

32. Northern Bush-Katydid, *Scudderia septentrionalis* Serville.

Very rare. Has been taken in Maine and eastern Massachusetts in July and August on undergrowth in woods.

33. Texan Bush-Katydid, *Scudderia texensis* Saussure et Pictet.

Common in swampy ground from July till October. Recorded

from Norway, Me., Seabrook, N. H., eastern Massachusetts, and throughout Connecticut.

34. Broad-winged Bush-Katydid, *Scudderia pistillata* Brunner.

A boreal species common in low shrubbery throughout New England. July till September.

35. Curve-tailed Bush-Katydid, *Scudderia curvicauda curvicauda* DeGeer.

Very common in shrubbery in southern New England and extending northward to middle Vermont and southwestern Maine (Fryeburg). July to September.

35a. Northern Curve-tailed Bush-Katydid, *Scudderia curvicauda borealis* R. et H.

A northern race of the preceding, a few examples of which I have taken in eastern Maine in cold heath-grown bogs, in August.

36. Fork-tailed Bush-Katydid, *Scudderia furcata furcata* Brunner.

Very common in tall grasses, bushes, and shrubbery, from July till October, from southern Maine and New Hampshire southward.

37. European Short-winged Bush-Katydid, *Leptophyes punctatissima* Bosc d'Antic.

Three examples of this species have been captured on Nantucket. It was doubtless introduced with commercial importations of plant materials but whether it still survives is unknown.

38. The Katydid, True Katydid, *Pterophylla camellifolia* Fabricius.

Arboreal, frequenting oak trees especially. Common locally in Connecticut and warmer parts of Massachusetts in September and October.

39. The Sword-bearer, *Neoconocephalus ensiger* Harris.

Our commonest cone-head, known from Norway, Me., southward. Late July till September. In grasslands, wild and cultivated.

40. Robust Cone-head, *Neoconocephalus robustus robustus* Scudder.

Common coastwise from Cape Cod southward, in sand-grass, and cat-tail marshes. August and September.

41. Round-tipped Cone-head, *Neoconocephalus retusus* Scudder.

Common, locally at least, in southern Connecticut in tall grass in meadows. August to October.

42. Unmusical Cone-head, *Neoconocephalus exiliscanorus* Davis.

One example is recorded by Walden from New Haven, Ct. It is said to be locally common in the vicinity of New York from August onward.

43. Broad-tipped Cone-head, *Neoconocephalus triops* Linné.

Two adventive examples of this southern species have been taken in Massachusetts in houses in winter, introduced with spinach greens from the south.

44. Larger Meadow-Grasshopper, *Orchelimum vulgare* Harris.

Very common in southern New England and probably occurring throughout. Prefers tall grasses and dense weedy jungles on moist or wet ground. July till October.

45. Bruner's Meadow-Grasshopper, *Orchelimum gladiator* Bruner.

In the same haunts as the preceding but less common in southern New England.

46. Dusky-faced Meadow-Grasshopper, *Orchelimum concinnum* Scudder.

Locally common in the coarse vegetation of tidal runways of coastwise saltmarshes in southern New England. Recorded from Rye Beach, N. H., vicinity of Boston, and Connecticut, from July 22 to Sept. 6.

47. Slender Meadow-Grasshopper, *Conocephalus fasciatus fasciatus* DeGeer.

Abundant in damp grasslands throughout New England from late July till October.

48. Short-winged Meadow-Grasshopper, *Conocephalus brevipennis* Scudder.

Very common in weedy jungles and dense grass in most of New England from late July till hard frost. Recorded from Eastport, Me., and Jefferson, N. H., southward.

49. Saltmarsh Meadow-Grasshopper, *Conocephalus spartinæ* Fox.

Locally abundant in short grasses of coastwise saltmarshes. Known from Old Orchard, Me., southward.

50. Wingless Prairie Grasshopper, *Conocephalus saltans* Scudder.

Common among low shrubs and tufts of bunch-grass on the sandy moors of Nantucket. August and September.

51. Long-legged Shield-bearer, *Atlanticus americanus* Saussure, and

52. Short-legged Shield-bearer, *Atlanticus testaceus* Scudder.

Scarce. Our two Shield-backed Grasshoppers live in dry woodlands, bushy pastures, etc., where they may be found crawling slowly over the dead leaves, or perhaps stridulating from some bush. Adults are recorded from the vicinity of Boston, Cape Cod, Marthas Vineyard, Connecticut, and Sudbury, Vt., from late July till October. A third species possibly occurs in western New England.

53. Asiatic or Greenhouse Cave-cricket, *Diestrammena marmorata* DeHaan.

Introduced into greenhouses and cellars in several parts of New England. It multiplies rapidly and quickly becomes abundant. I have received examples from Kennebunk, Me., Danvers and Springfield, Mass. Adults and young throughout the year.

Native Cave-crickets, *Ceuthophilus* spp.

Our native cave-crickets, stone-crickets, or camel-crickets are usually found under bark, boards, stones, etc., or in cellars and holes during the day, emerging at night in search of food. Adults are most numerous out-of-doors in late summer and fall, but hibernating examples are not rare in favorable conditions. The genus needs thorough collecting in liquid preservative and complete revision.

54. Spotted Cave-cricket, *Ceuthophilus maculatus* Harris.

Our commonest camel-cricket, probably found throughout New England. Gregarious, under stones, logs, and in cellars.

55. Yellow Cave-cricket, *Ceuthophilus neglectus* Scudder.

Probably throughout New England in woodlands. Recorded

from Jackman, Me., Plymouth, Vt., eastern Massachusetts, and Connecticut.

56. Woodland Cave-cricket, *Ceuthophilus neglectus* Scudder.

A common species in cool, moist woodlands and forests in Vermont and New Hampshire.

57. Short-legged Cave-cricket, *Ceuthophilus brevipes* Scudder.

Rare. Recorded from Grand Manan, N. B., and North Madison, Ct.

58. Black-sided Cave-cricket, *Ceuthophilus latens* Scudder.

Walden has taken this species at Lyme, Ct., under stones, in August.

59. Pale-footed Cave-cricket, *Ceuthophilus lapidicola* Burmeister.

(*C. pallidipes* E. M. Walker.)

Not common. Reported from New Haven, Ct., and Wellesley, Mass.

60. Slender-legged Cave-cricket, *Ceuthophilus gracilipes* Haldeman.

Captured in cellars and under bark of fallen trees in Connecticut by Walden in August and September. Half-grown young in cave at New Ashford, Mass., Dec. 22, (G. M. Allen). An example of the variety *stygius* Scudder has been taken at Beverly, Mass.

Family Gryllidæ, Crickets, Tree-crickets, Mole-crickets.

61. Common Field-cricket, *Gryllus assimilis* Fabricius.

Very common throughout New England especially in sandy areas. June till heavy frost. In southern New England a few nymphs hibernate.

62. Striped Grass-cricket, *Nemobius fasciatus fasciatus* DeGeer.

Abundant everywhere, probably throughout New England, in grasslands. July till late fall.

63. Sand Cricket, *Nemobius griseus* E. M. Walker.

Known in small numbers from sandy districts in Maine, Massachusetts, and Connecticut. August and September.

64. Little Spotted Cricket, *Nemobius maculatus* Blatchley.

New Canaan, Ct., Sept. 11, B. H. Walden. Extra-limitally it is said to live in low open woods in damp places.

65. Sphagnum Cricket, *Nemobius palustris* Blatchley.

Locally common in sphagnum-bogs at Orono, Me., in eastern Massachusetts and Connecticut. September and October.

66. Cuban Ground-cricket, *Nemobius cubensis* Saussure.

Doubtfully present in small numbers in Connecticut. A few specimens have been taken which seem to intergrade with the preceding.

67. Carolina Ground-cricket, *Nemobius carolinus* Scudder.

Locally common throughout New England. Damp soils, edges of woodlands, stream-sides, etc. August to November.

68. Snowy Tree-cricket, *Oecanthus niveus* DeGeer.

Recorded from vicinity of Portland, Me., and common throughout southern New England in shrubbery near houses, orchards, gardens, etc., from late August till October. Observation of its song should greatly extend its known range.

69. Narrow-winged Tree-cricket, *Oecanthus angustipennis* Fitch.

This species has been taken near Boston, Mass., and at various points in Connecticut between Aug. 14 and Oct. 20. It frequents orchards and fruit trees and even low thickets of sweetfern.

70. Davis's Tree-cricket, *Oecanthus exclamationis* Davis.

Recorded by Walden from trunks of trees, near New Haven, from August to October. On Long Island it is found on bur oak.

71. Four-spotted Tree-cricket, *Oecanthus quadripunctatus* Beutenmüller.

Widely distributed and locally abundant in southern New England, extending north as far at least as Woodstock, Vt., Hoxies and Brunswick, Me. Lives in weedy thickets of wild carrot, Joe-Pye-weed, raspberry bushes, etc. August till October.

72. Dusky Tree-cricket, *Oecanthus nigricornis* Walker.

Found in same places as last and nearly as common. Inhabits all the New England States.

73. Pine Tree-cricket, *Oecanthus pini* Beutenmüller.

Said to live only in pine-trees. Reported from Gloucester, Cape Cod, and Marthas Vineyard, Mass.

74. Two-spotted Tree-cricket, *Neoxabea bipunctata* DeGeer.

Known in small numbers from Connecticut: New Canaan, New Haven, and Portland, Aug. 14 to Sept. 11.

75. Striped Bush-cricket, *Anaxipha exigua* Say.

Walden reports this species at Westbrook, Ct., living in tangled vegetation on and near saltmarshes.

76. *Hapithus vagus* Morse.

An adventive exotic species which maintained itself for several years in the greenhouses of the Botanic Garden at Cambridge, Mass.

77. American Mole-cricket, *Gryllotalpa hexadactyla* Perty.

Probably occurs throughout New England but is very local and difficult to capture. Lives in meadows, along streams and about ponds, burrowing in the turf and muddy shores. Its call might easily be mistaken for that of a small frog.

78. European Mole-cricket, *Gryllotalpa vulgaris* Latreille.

Reported from Nantucket, where it was doubtless introduced with importations of plants from Europe. Whether established or not remains to be proved.

79. Pygmy Mole-cricket, *Tridactylus apicalis* Say.

Lives on and in the damp sand on the edges of ponds and streams. Recorded from Connecticut, and from Cambridge, Winchester, and Nantucket, Mass. Adults were common at the last-named locality on July 13; a few nymphs were found on the same date and on Sept. 10.

Family Acrididæ, Locusts.

Subfamily Acridinæ (Tryxalinæ *auct.*).

80. Bunch-grass Locust, *Pseudopomala brachyptera* Scudder.

Common locally in coarse grasses, especially *Andropogon scoparius*, on wild and uncultivated lands from southwestern Maine, southern New Hampshire and Vermont southward, including Marthas Vineyard and all of Connecticut. July to September.

81. Velvet-striped Locust, *Eritettix simplex* Scudder.

Rare. Walden records it from several points in southern Connecticut on light dry soil with but little vegetation, such as abandoned fields and dry pastures. Adults are recorded on Oct. 31 and from May 25 to June 30. They apparently hibernate.

82. Bicolored Locust, *Dichromorpha viridis* Scudder.

Common in southern New England (except southeastern Mass.) from late July onward, often locally abundant in Connecticut. Most plentiful in damp pastures and mowing-lands in dense succulent grass. It has decidedly increased in numbers in the vicinity of Boston within the last twenty-five years, apparently spreading northeastward.

83. Pasture Locust, *Orphulella speciosa* Scudder.

Found throughout the Transition and Austral areas of New England from Grand Lake Stream, Orono, and Norway, Me., southward, including Nantucket and Marthas Vineyard. Common locally, abundant southward. Generally distributed on dry soils. Adults appear early in July and are common until October.

84. Spotted-winged Locust, *Orphulella pelidna* Burmeister.

Widely distributed over southeastern third of New England on sandy soils. Abundant southward, especially coastwise, but unknown as yet from north of Massachusetts. Adults begin to appear a little later than the preceding species.

85. Saltmarsh Locust, *Orphulella olivacea* Morse.

Locally plentiful on saltmarshes on the Connecticut shore. Known from New Haven, Stratford, Stamford, and Greenwich, from August 11 to 28. Continued collecting coastwise will probably greatly extend dates of capture and New England distribution record.

86. Sprinkled Locust, *Chlœaltis conspersa* Harris.

Locally common throughout New England from late June onward, particularly in July in bushy pastures and along the edges of woodlands. Eggs are laid in wood-stumps, boards, rails, etc.

87. Meadow Locust, *Chorthippus curtipennis* Harris.

Common, often abundant locally, throughout New England. In damp places, meadows, saltmarshes, brooksides, ditch borders,

wherever there is a thick and succulent growth of herbage. Adults from early June till mid-November.

88. Striped Sedge Locust, *Mecostethus lineatus* Scudder.

Locally plentiful in cold wet sedge meadows and bogs, probably throughout New England, at all elevations from sea-level to the summit of Katahdin. Adults have been captured from July 21 to Oct. 6.

89. Northern Sedge Locust, *Mecostethus gracilis* Scudder.

In the same habitats as the preceding but restricted to the northern tier of States and high elevations in Massachusetts. Locally common, July 12 to Sept. 6 and probably later.

90. Broad-winged Sedge Locust, *Mecostethus platypterus* Scudder.

A rare species having the same haunts as *lineatus*, recorded as yet (in New England) only from Sherborn, Mass., and Thompson, Ct., in August. It probably inhabits at least the southern half of New England.

Subfamily Œdipodinæ, Band-winged Locusts.

91. Autumn Yellow-winged Locust, *Arphia xanthoptera* Burmeister.

Locally common in dry pastures from late July to November in the warmer parts of the Transition zone, from middle New Hampshire (Scudder) southward, including Nantucket and Marthas Vineyard.

92. Spring Yellow-winged Locust, *Arphia sulphurea* Fabricius.

Common and widely distributed in dry bushy pastures and wild land in spring and early summer, from May till August. It is probably found throughout New England, though as yet not recorded from north of Deering and Norway, Me., Berlin Falls and Hanover, N. H. The young are active on warm days in winter.

93. Green-striped Locust, *Chortophaga viridifasciata* DeGeer.

Generally distributed throughout New England in pastures and mowing-lands. Adults appear in mid-April and linger till frost, though most plentiful from May till July; rarely, freshly matured individuals are seen in the fall. The young are plentiful and often conspicuous in their haunts on warm days in winter.

94. Dusky, or Clouded Locust, *Encoptolophus sordidus* Burmeister.

Common, often abundant, in weedy fields and pastures from late July till November. Inhabits the warmer parts of New England from Orono, Me., southward.

95. Clear-winged Locust, *Camnula pellucida* Scudder.

Dangerously abundant locally in dry fields and pastures throughout northern New England, maturing in June and active till late in the fall. It occurs in small numbers as far south as northeastern Massachusetts, northeastern and middle western Connecticut.

96. Coral-winged Locust, *Pardalophora apiculata* Harris.

Common throughout New England, especially in bushy pastures and wild land, from mid-April to July. Found from Nantucket to summit of Mt. Washington. The young hibernate and may frequently be found in mid-winter.

97. Wrinkled Locust, *Hippiscus rugosus* Scudder.

Recorded from Norway, Me., and eastern Massachusetts many years ago. No specimens have been taken in New England recently. It should be looked for in July and August on the sandy coastal plain.

98. Carolina Locust, Black-winged Locust, *Dissosteira carolina* Linné.

Very common throughout the Transition and Austral parts of New England on the bare soil of roads, gravel-pits, vacant lots, pastures, and sea-beaches, from early July till late in the fall.

99. Collared Locust, Scudder's Waste-Land Locust, *Spharagemon collare scudderi* Morse.

Common, even plentiful locally, in sandy districts in southern New England from Brunswick, Me., Ossipee and Manchester, N. H., and Vermont, southward to Nantucket, Marthas Vineyard and southern Connecticut. July till October.

100. Boll's Locust, *Spharagemon bolli* Scudder.

Generally distributed throughout the Transition and Austral areas of New England. Semi-sylvan, inhabiting bushy pastures on upland soil. July till October.

101. Ledge Locust, *Spharagemon saxatile* Morse.

Common on exposed ledges in eastern Massachusetts and throughout Connecticut, from July till October.

102. Marbled Locust, *Scirtetica marmorata* Harris.

Locally common in sandy tracts in southern Connecticut, Marthas Vineyard, the Cape Cod district (Dennis, Provincetown), and has been taken at Manchester, N. H. (Fogg). July till October.

103. Sand Locust, Long-horned Locust, *Psinidia fenestralis* Serville.

Very common and widely distributed on wind-blown sand, along the coast, inland river-beaches, sand-pits, dune areas, etc. Recorded from Brunswick and Norridgewock, Me., No. Conway, N. H., Grand Isle, Vt., and many localities in Massachusetts, Rhode Island, and Connecticut. June till November.

104. Seaside Locust, *Trimerotropis maritima* Harris.

Very common on sandy sea-beaches and adjoining dune areas from Old Orchard, Me., southward. Has been taken inland only at North Haven, Ct. July till November.

105. Snapping Locust, Broad-winged Locust, *Circotettix verruculatus* Kirby.

A boreal species, very common in the Canadian zone and extending southward at least as far as Gloucester and Palmer, Mass., Colebrook and Canaan, Ct. It frequents exposed rocks and ledges, and to a less extent bare earth and roadsides as well. July till October.

Subfamily Locustinæ (Acridiinæ), Spine-breasted Locusts.

106. American Locust, *Schistocerca serialis* Drury.

Does not usually breed in New England, but stray individuals occasionally reach southwest Connecticut by flight. A colony was found at Wollaston, Mass., in 1883 by F. H. Sprague.

107. Rusty Locust, Leather-colored Locust, *Schistocerca alutacea* Harris and

107a. *Schistocerca alutacea rubiginosa* Scudder.

Common locally from Manchester, N. H., southward in the coast-plain area of Massachusetts, Rhode Island, and Connecticut.

The unstriped form (*rubiginosa*) is more usual in the north and on upland stations; the striped form (*alutacea*) along the southern coast and in grassy swamps. Adults have been taken from Aug. 5 till Oct. 30.

108. White Mountain Wingless Locust, *Podisma glacialis glacialis* Scudder.

A strictly boreal species, locally common from sea-level in eastern Maine to subalpine thickets on the highest mountains of New England. It is found in shrubby thickets in cold bogs, moist woodlands, and at timber-line on mountains. Adults from July till September. It is found on the summits of Greylock Mt., Mass., Ascutney Mt., Vt., Chocorua and Pequaket, N. H.; bogs at Umbagog Lake, Orono, Cherryfield, and Roque Bluff, Me.; and many other points north of these.

109. Swamp Locust, *Paroxya clavuliger* Serville.

Locally common in swamps and marshes (both salt and fresh) of southern New England from vicinity of Boston southward. July till October.

110. Purple-striped Locust, *Hesperotettix brevipennis brevipennis* Thomas.

Rare and local. Has as yet been taken at but three points in New England: Wellesley, Dover, and Walpole, Mass., in bunch-grass (Andropogon scoparius). July till September.

111. Lesser Migratory Locust, *Melanoplus atlanis* Riley.

Dangerously abundant throughout New England, sometimes doing severe injury locally. Most plentiful on sandy loam. June till November.

112. Yellow-striped Locust, *Melanoplus bivittatus* Say.

Common throughout New England from sea-coast to mountain-top, frequenting especially the rank vegetation of meadows and springy runs. Sometimes does much injury locally. June to November.

113. Red-legged Locust, *Melanoplus femur-rubrum* DeGeer.

Probably our most generally distributed and injurious "grass-hopper," though sometimes outnumbered by *atlanis*. Prefers damper situations than *atlanis*. July to November.

114. Northern Locust, *Melanoplus borealis* Fieber.

A boreal species common from northern Massachusetts northward. Frequents the dense grass of moist meadows, bogs, sedgy swamps and mountain-tops. June to September.

115. Little Locust, *Melanoplus confusus* Scudder.

Common in grassy fields and pastures on sandy loam, from June till August, probably throughout the Transition and Austral areas of New England. Known from Fryeburg, Me., Jackson, N. H., Woodstock, Vt., and southward.

116. Broad-necked Locust, *Melanoplus luridus* Dodge.

A common, widely distributed, semi-sylvan species, appearing in late July and active till the ground freezes. Bushy pastures, edges of forests, open woodlands. Probably occurs throughout New England.

117. Pine-tree Locust, *Melanoplus punctulatus* Scudder.

Scarce, almost rare, but sometimes common locally, usually associated with groves or trees of white pine, on which it lives. The eggs are laid in holes made by borers in the trunk or bark. Recorded from Brunswick, Me., No. Conway, N. H., Vermont, and southward. Late July to November.

118. Banded Locust, Huckleberry Locust, *Melanoplus fasciatus* Walker.

Widely distributed and common locally, often in huckleberry thickets on sterile soil, from the sandy moors of Cape Cod and Nantucket to the highest mountain summits. June till September.

119. Dawson's Locust, *Melanoplus dawsoni* Scudder.

Rare in New England; known only from Manchester, N. H., Brunswick, and one other locality in southwestern Maine, and in the coarse grasses of dry fields among pitch pines on gravelly soil. July to September.

120. Smith's Locust, *Melanoplus mancus* Smith.

Widely distributed but very local. Found from eastern Maine to southern Connecticut, frequenting dwarf blueberry thickets on dry mountain summits and hill-tops. Dates of capture range from Aug. 8 to Sept. 6; these will probably be much extended by further collecting.

121. Scudder's Short-winged Locust, *Melanoplus scudderi* Uhler.

Locally common in southern New England in brushy thickets in August and September. It has been taken at Springfield and Wareham, Mass., and New Haven, Ct.

122. Green-legged Locust, *Melanoplus viridipes* Scudder.

Mr. C. W. Johnson has taken this species at five points along our western border: Bashbish Falls, Great Barrington, and Williamstown, Mass., Mansfield and St. Albans, Vt., all in June. It was found among low shrubby thickets on dry upland soil.

123. Large-headed Locust, *Phœtaliotes nebrascensis* Scudder.

Only one example is known from New England. This was taken at Needham, Mass., Aug. 23, 1908, in an abandoned field on sandy loam. The species is common in the West.

Subfamily Acrydiinæ, Pygmy Locusts (Tettiginæ, Grouse Locusts).

All the Pygmy Locusts hibernate in the adult stage. They rest on the bare earth instead of perching on vegetation.

124. Crested Pygmy Locust, *Nomotettix cristatus cristatus* Scudder.

Found everywhere on light soils, such as dry pastures and mowing-lands, probably throughout New England; abundant locally. Adults occur throughout the year but are most plentiful in April, May, and October.

125. Angulate Pygmy Locust, *Acrydium granulatum granulatum* Kirby.

Common throughout New England on the moist earth of meadows, especially on sandy soil, and the margins of swamps and streams. Adults are most numerous in April, May, August, and September.

125a. Broad-shouldered Angulate Pygmy Locust, *Acrydium granulatum incurvatum* Hancock.

A form described from the West, four examples of which have been taken at Moosehead Lake and in the alpine zone of the White Mt. region.

126. Ornate Pygmy Locust, *Acrydium ornatum ornatum* Say.

Lives in wet meadows and damp spots on upland soils through-

out New England. Generally distributed, sometimes very common locally. Most numerous in spring and fall months.

127. Hancock's Pygmy Locust, *Acrydium hancocki* Morse.

Known from Randolph, N. H., and northern Maine, in July and August. Taken on damp spots on roadsides and in fields.

128. Obscure Pygmy Locust, *Acrydium arenosum angustum* Hancock.

Widely distributed and common locally from eastern Maine and northern Vermont southward. Found in the same haunts as the Ornate Pygmy Locust.

129. Hooded Pygmy Locust, *Paratettix cucullatus* Burmeister.

Common, even abundant locally, in Connecticut in late August. Lives as far north as Alstead, N. H., in the Connecticut valley, and is recorded by Scudder from the vicinity of Boston. It frequents the shores of ponds and streams, resting on sand, mud, or stones.

130. Sedge Pygmy Locust, *Tettigidea lateralis parvipennis* Harris.

Wet, sedgy meadows, springy runs, etc., throughout New England, in every month of the season. Common, sometimes plentiful, especially on sandy loam.

NOTES ON SOUTH AFRICAN PHORIDÆ (DIPTERA).

By Charles T. Brues,

Bussey Institution, Harvard University.

Dr. L. Peringuey of the South African Museum at Cape Town, recently sent me several specimens of Phoridæ belonging to the Museum collections, one of which is of considerable interest.[1] This is the female of the genus Conoprosopa which proves to be almost completely wingless and very highly modified. There is also a very distinct species of Paraspiniphora which is here described.

[1] Owing to the conditions brought about by the war and the impossibility of publishing the Annals of the South African Museum at the present time, Dr. Peringuey has kindly given me permission to have this short note published in an American journal.

Paraspiniphora armipes sp. nov.

♀. Length 4 mm. Black; head, except ocellar space, antennae, fourth segment of abdomen, apex of fifth and ovipositor bright ferruginous; palpi orange yellow; legs pale brownish yellow, the hind femora lined above with black; wings with a pale brownish cast, the venation dull piceous; halteres, extreme postero-lateral corners of mesonotum and extreme base of wing, including veins yellowish white. Front very slightly higher than broad, its bristles strong; post-antennal pair approximate, strongly reclinate; lower row strongly curved downward medially, the median pair considerably further from one another than from the laterals which are well removed from the eye; upper row straight, on the median line twice as far from the lower row as from the ocellar one, consisting of four equidistant bristles, the lateral ones close to the eye; surface of front with scattered minute hairs. Post-ocular cilia much enlarged at upper two-thirds. Cheeks each with a pair of large bristles directed downward and a single small one at the level of the antenna. Antennæ small, oval; arista less than twice as long as the front. Palpi large and stout, with strong bristles; proboscis heavily chitinized, hard and shining, as large as one of the palpi. Mesonotum rather elongate, its surface shining; one pair of dorsocentral bristles set at the posterior margin with a series of six small bristles forming a row between them; scutellum short and broad, with four large, equal bristles. Propleura hairy, with a pair of bristles near the base of the coxa and another pair below the spiracle; remainder of pleuræ bare except for an area of hairs on the mesopleura anteriorly above. Abdomen bare, except at apex, with the second segment distinctly, but not greatly elongated. Legs rather stout, the posterior femur about one-third as broad as long; front tibia with a bristle at the basal third and a series of five minute, but very distinct ones just before apex; middle tibia with a series of five bristles on the hind edge, the first near the base and the last almost at apex, also with two serial bristles externally near base and with a patch of comb-like hairs near apex; hind tibia with a series of four or five bristles along the hind edge beginning at the basal fifth and extending to the apical third; just outside these with a series of six, four on the basal half and two on the apical half; then with a third series of four on the

front edge (*i. e.*, next the femur extending from just before the middle to the apical fourth; in addition with two spurs and an apical spine opposite these. All the tibial spines stout, but not very long. Wings large, but rather narrow; costal vein extending to the middle, with extremely minute, hair-like bristles; first section nearly four times as long as the second and third together; third vein with a single bristle at the base; fork of third vein scarcely perceptible as the second lies very close to it; fourth vein close to the costal margin, slightly curved on basal half and recurved equally toward apex; following veins straight, the seventh long. Halteres pale yellow.

Type from Durban, Cape Colony (Marley), April, 1915. Type in the South African Museum.

In the armature of the tibiæ this species differs from any other hitherto described from any part of the world and will be readily recognized by these characters alone.

Conoprosopa Becker.

1909 Bull. Mus. Hist. Nat. Paris, p. 113.
1910 Brues, Psyche, Vol. 17, p. 34 (*Coryptilomyia*).
1911 Becker Ann. Soc. Ent. France, Vol. 29, p. 30.
1912 Enderlein, Stettiner Ent. Zeit. p. 51 (*Metopotropis*).
1912 Brues, Psyche, Vol. 19, p. 135.

As indicated in the last reference above *Conoprosopa*, *Coryptilomyia* and *Metopotropis* are synonymous and the three type species are probably also identical. These three were all described from the male which is of very peculiar structure, particularly in the form of the head. The female has remained unknown,[1] but was presumably to be found not markedly different from the male. A pair taken *in copula* shows the female to be an almost wingless, highly modified, cockroach-like form similar to the females of several genera known from various parts of the world. Of none of the latter is the male definitely known although Platyphora of Europe and America is probably the male of Ænigmatias known also from these continents. Of Ænigmatistes, Ænigmatopæus Thaumatoxena, etc., from Africa only the apterous females are known.

[1] The sex of the types was mistaken by Enderlein and myself.

The female of Conoprosopa is most nearly similar to Ænigmatistes described from British East Africa by Shelford in 1908[2] and if the male should prove to be similar to that of Conoprosopa, the two might perhaps be considered as congeneric. *Conoprosopa* differs quite markedly from *Ænigmatistes* in the broader head which is much more closely applied to the thorax and to a lesser degree by its smaller antennal cavities and form of the lower side of the head. From Thaumatoxena, which it resembles more closely in the form of the head and thorax it differs in the multisegmented abdomen and the dorsal position of the antennal cavities.

A most interesting note accompanies the present specimens stating that when the pair was captured the male was carrying the female between its legs and flying about a lamp.

In the description that follows, I have used the specific name *armigera* as I am sure the male is identical with this species, although, as mentioned above, the three species of the genus are probably not distinct. In the latter case *C. scutellata* Becker would be the older name.

Conoprosopa armigera Brues (Fig. 1.).

Psyche, Vol. 17, p. 35 (1910) (*Coryptilomyia*) ♂.

Female. Length 2.2 mm. Broadly oval, much flattened, about half as wide as long, wings represented by minute, finger-shaped vestiges. Head seen from above crescentic and closely applied to the thorax; anterior margin sharply carinate, front and vertex sloping down rather sharply, without macrochætæ; face gently convex, almost horizontal, broadly curved behind and forming the underside of the head; its width about a fourth greater than its length; its lateral angles, which form the anterior corner of the antennal cavities, sharply and acutely angled. Antennæ small, the third joint rounded, with a bare arista; antennal cavities not visible from above, and the antennæ projecting but slightly, a part of the third joint being visible from above near the hind angle of the head. Palpi very short, bare, their tips visible from below between the antennæ and front coxæ. Eyes small, oval, placed at the extreme lateral angles of the head, not visible from below; thorax

[2] Journ. Linn. Soc. Zool., Vol. 30, p. 150

consisting of one segment,[1] very much widened behind and with nearly straight sides; prothoracic spiracles large, on the upper surface, not far from the anterior margin, but well removed from the sides; wing pads about half as long as the sides of the thorax,

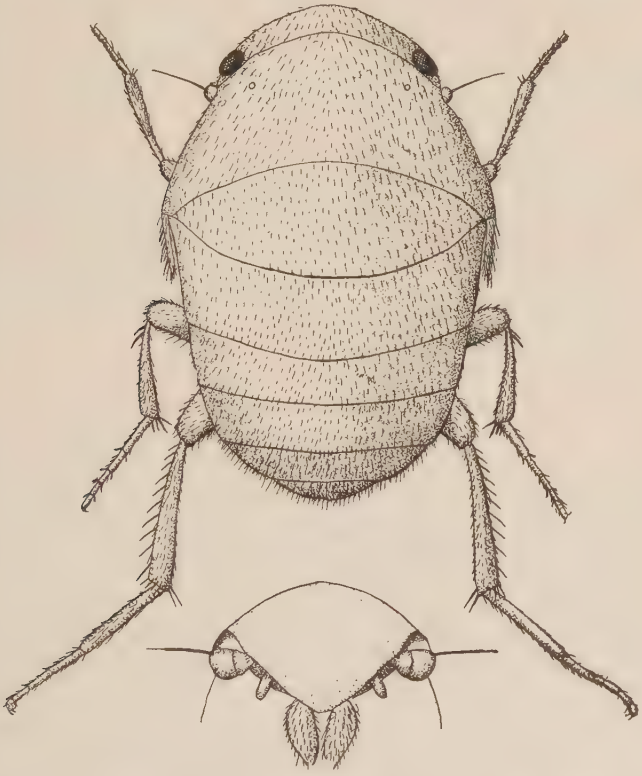

Fig. 1. *Conoprosopa armigera* Brues, female. Dorsal view and front view of head.

heavily chitinized at the base and along the anterior margin, but hyaline apically behind; clothed with fine hairs. Abdomen with six visible segments, the first nearly as long medially as the thorax, but contracted to a point laterally; second somewhat shorter and

[1] There is some doubt in my mind as to whether I have interpreted correctly the segmentation of the body. Shelford has considered the thorax of Ænigmatistes as consisting of three segments, but as all the wingless female Phoridæ of more normal body shape have the thorax much reduced, I assume such to be the case with Conoprosopa. Enderlein takes the same view in regard to Oniscomyia.

not narrowed laterally, with its margins strongly arcuate, but nearly parallel; third and fourth each only a little more than half as long as the second and but little narrower; fifth and sixth shorter and suddenly narrower. Legs rather short and not very stout; anterior tibiæ without bristles: middle tibiæ each with a pair of unequal bristles at the basal third and with two long spurs and several shorter bristles at the tip; hind tibia with a series of about ten strong bristles externally, about as long as the width of the tibia; these form a single row except at the base where three of them are in a second row anterior to the first one. Color: head, thorax and legs pale brownish yellow, the antennae and palpi lighter; abdomen fuscous, darker laterally and at tip; underside quite decidedly paler than the upper. Described from a single female from Natal, August, 1915. (B. Marley.) In the collection of the South African Museum.

FOSSIL CYNIPIDÆ.[1]

By Alfred C. Kinsey.

The following references to fossil Cynipidæ have been made regularly throughout the literature, but as here indicated no one of the references applies to a description or location of a true gall-wasp.

Schlotheim, E. F., 1820. *Die Petrefactenkunde.* Gotha. Page 43, merely names "Cynips" in a list of fossil insects *known*, mainly from amber.

Presl, J. S., 1822. *Deliciæ Pragenses Historiam Naturalem Spectantes.* Pragæ., Vol. 1, p. 195, has this: "Cynips succinea. Longitudo $\frac{3}{4}$ lineæ. Caput globosum, parvulum, rufescens; antennæ longæ, fere quater longitudine sua caput superantes, evidenter ex articulis minutis æqualibus compositæ. Thorax tergo atro, pectore rufescente. Abdomen ovale, stylo dependens, lucidum, fuscum. Alæ quatuor, anteriores obovatæ, latæ, corpore longiores fere tantum, quantum longitudo abdominis efficit, pellucidæ, inquibus decursus venarum non determinabilis quoniam alæ posteriores subtus jacent; alæ posteriores parum breviores

[1] Contributions from the Entomological Laboratory of the Bussey Institution, Harvard University, No. 154.

anticis, margine interiori et anteriori longis ciliis obsitæ. Pedes teneri, mediocriter longi. Ab omnibus Cynipsibus hucusque notis longe differens."

This description has been the basis of the most persistent reference to a fossil Cynips. The *Deliciæ Pragenses* is rather rare, so it seems worth copying the description in full. I cannot see that it is possible to refer the above to a particular Hymenopterous family, much less to consider such a vague description as defining a species.

Gravenhorst, J. L. C., 1835. *Die in Bernstein erhalt. inseckt.* Page 92, merely includes "Diplolepis" in the list.

Menge, A., 1856. *Lebenszeichen vorweltlicher, im Bernstein engleschlossener Thiere.* Danzig. Page 25. Number five is described as a wingless animal, a male, with thread-like, 14-jointed antennæ, the 3rd joint incised; at the tip of the abdomen is a rather short projection, somewhat thickened at the tip. This may have been a true Cynipid, but still the description is too brief to define even the family, especially as I have seen a male Belytd with similar antennæ in Baltic amber, together with a wingless female belonging to the same family.

Scudder, S. H., 1886. *Bull. U. S. Geol. Survey, No. 31, p. 98.* Says that the Cynipidæ are "very abundant at Florissant and two or three galls have been obtained there." The Scudder collection is the source of two of the species described in the present paper; the galls are undoubtedly *not* Cynipid, though it is usually useless to attempt to decide on the nature of fossil galls.

Brues, C. T., 1910. *The Parasitic Hymenoptera of the Tertiary of Florissant, Colorado.* Bull. Mus. Comp. Zoöl. LIV, p. 1. Describes Andricus myricæ, a gall on a Myrica leaf. Prof. Cockerell has drawn my attention to the fact that this is obviously a synonym of *Cecidomyia* (?) *pontaniiformis* Cckll. (cf. Bull. Am. Mus. Nat. Hist. 1908, Vol. XXIV, p. 66.)

The species described in the present paper are, then, the first fossil Cynipidæ definitely characterized. It is noteworthy that the three species belong to one genus, or to two very closely related genera. Aulacidea differs from Aylax only in having a closed radial cell, and since only the third species shows that cell, the first two may belong to Aylax. In any event, the relationship of

the three is close, which is the more remarkable because their places of origin were widely separated, both geographically and geologically. I expect to publish later data from a study of present-day species of gall-wasps; it points to Aulacidea as the most primitive Cynipid genus. It would be important to know something of the time and manner of origin of the more highly specialized, oak-gall-forming species with their complex biology. A careful search through collections of fossils would likely lead to the discovery of species that might supply further information on that question.

Aulacidea Ashmead

The characters of the first three antennal segments, and the size of the second abdominal segments of all the fossils are Aylax or Aulacidea characters. The straight apical branch of the subcostal vein, and the arcuate first abscissa of the radius shown in two of the species are rare characters among Cynipidæ outside of Aulacidea.

Aulacidea progenitrix sp. nov.

Female. Head: with the 1st and 2nd antennal joints stouter than the following joints, and the last joint longer than the penultimate. *Thorax:* with parapsidal grooves apparent. *Abdomen:* broadly oval, the second tergite half the length and little more than half the depth of the whole abdomen, with three other segments apparent, and the sheaths of the ovipositor extending to the dorsal line. *Length:* 3.5 mm.

Locality: Miocene, of Florissant, Colo.

Type: specimen number 2376 in the Scudder collection of fossils in the Museum of Comparative Zoölogy. (Fig. 1, A.)

This specimen has the head very much distorted, and traces of but fragments of the antennæ, legs, and wings. The second dorsal abdominal plate extends little beyond the dorsal line, and is smaller than in any other species of true Cynipid, likely indicating more primitive relationships.

Aulacidea ampliforma sp. nov.

Male. Head: with filiform antennæ, the second joint stoutest. *Thorax:* with parapsidal grooves apparent. *Abdomen:* broadly oval, the second dorsal plate extending half the length of the abdo-

men, and on the sides two-thirds to the mid-ventral line. *Wings:* with the apical part of the subcosta straight, the first abscissa of the radius arcuate, the areolet of moderate size; cubitus arising

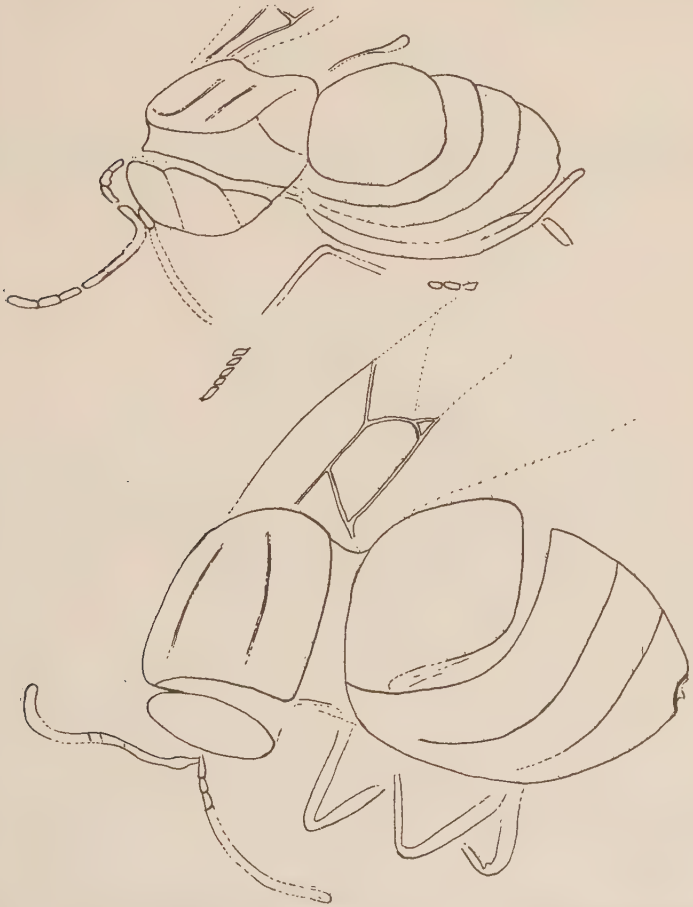

Fig. 1. Above: *Aulacidea progenitrix* sp. nov. Below: *Aulacidea ampliforma* sp. nov.

very much below the middle of the first cross-vein. *Length:* 5.5 mm.

Locality: Miocene, of Florissant, Colo.

Type: specimen number 2063 of the Scudder collection in the Museum of Comparative Zoölogy. (Fig. 1, B.)

This specimen is apparently a male, as indicated by the shape of the abdomen and the absence of hypopygium or ovipositor sheaths. The second dorsal abdominal segment in this species is relatively larger than in *A. progenitrix*, and the insect has a length 1.5 mm. greater than in any other known Aulacidea.

Aulacidea succinea sp. nov.

Female. Head: about as broad as the thorax; palpi 4 (?)-jointed; antennæ 14-jointed, the first joint obconical, elongate, the second globose, the third joint the longest, more slender than and

Fig. 2. *Aulacidea succinea* sp. nov.

as long as 1 plus 2, remaining joints diminishingly shorter to the 13th, 14th about as long as the 12th, and with a short pubescence absent only on the basal half of the antennæ; the antennæ originate about on the mid-line of the eyes. *Thorax:* distinct parapsidal grooves extending to the pronotum, converging slightly toward the scutellum; the scutellum longer than wide, with two large, broad, moderately deep foveæ. *Abdomen:* with plates 2–6 visible, the 2nd about one-half the total abdominal length, plates 3–6 subequal in length; hypopygium regular, abruptly ending, the tip pubescent. *Legs:* the tibiæ very slender; 1st tarsal joint almost half the total tarsal length, 4th joint the shortest; claws simple,

broad; tarsi pubescent. *Wings:* radial cell slender, closed; apical portion of the subcosta straight; first abscissa of the radius arcuate; cubitus arising distinctly below the middle of the first cross-vein. *Length:* 3.5 mm.

Locality: Oligocene, in Baltic amber.

Type: A single specimen from the collection of the Königsberg Museum, and temporarily at the Bussey Institution, of Harvard University. (Fig. 2.)

This specimen is most remarkably preserved, exhibiting an almost complete set of specific characters.

THE OCCURRENCE OF WINGLESS PHORIDÆ ON THE FIJI ISLANDS.

By Charles T. Brues,
Bussey Institution, Harvard University.

Dr. William M. Mann recently gave me for examination some wingless flies which he reared from dead snails when in the Fiji Islands several years ago. There are numerous specimens of two species, and both appear to be identical with forms described from the Bismarck Archipelago. The first is *Chonocephalus dorsalis* Wandolleck and the second *Puliciphora lucifera* Dahl, of which there is also a winged male. Chonocephalus is known from various localities in the tropics of both hemispheres where it is represented by several species. In addition to the form mentioned, another has been found in the South Seas, *C. depressus* De Meij. from Sumatra, and I have an undescribed one from New Guinea. Puliciphora is represented by numerous species, nearly all confined to the tropics.

It may seem strange that these species should be found on such widely separated islands, but they breed in decaying animal and plant matter of various kinds, in common with some other Phoridæ, and have great opportunities to be distributed on shipboard.

A NEW SUBSPECIES OF *APHAENOGASTER TREATÆ* FOREL.

By William Morton Wheeler.

Aphaenogaster treatæ subsp. **harnedi** subsp. nov.

Worker. Differing from the typical *treatæ* in having the lobe at the base of the antennal scape much shorter and narrower, not more than $\frac{1}{6}$ as long as the scape (about $\frac{1}{5}$ as long in the type), and in sculpture, the thorax, petiole, postpetiole and basal half of the first gastric segment being opaque and densely punctate and the puncturation of the head denser and coarser, so that its occiput and sides are opaque. The petiolar node is less compressed anteroposteriorly, with shorter peduncle, and the postpetiole is more evenly rounded above in profile. The color is like that of the typical *treatæ*, but the head is not infuscated above.

Described from ten specimens taken by Prof. R. W. Harned at Caesar, Mississippi. Seven specimens taken by myself at Denton and Montopolis, Texas and an equal number taken by Father J. Schmitt at Donophan, Missouri, are also referable to this subspecies though they have the lobe of the antennal scapes as long and broad as in the typical *treatæ*, which ranges from South Carolina to Long Island. The var. *ashmeadi* Emery from Georgia and Florida and the subsp. *wheeleri* Mann from Naushon Island, Mass., are darker and the former has very short antennal lobes, a transversely rugose epinotum and opaque, coarsely rugose mandibles, the latter long antennal lobes, coarse, rugulose cephalic and thoracic sculpture and horizontal epinotal spines. Both of these forms have the first gastric segment smooth and shining as in the typical *treatæ* or punctate only at the extreme base. The females of *treatæ* and of the subsp. *wheeleri*, however, have the basal half of the first gastric segment opaque and punctate as in the worker *harnedi*.

EXCHANGE COLUMN.

Notices not to exceed four lines in length concerning exchanges desired of specimens or entomological literature will be inserted free for subscribers, to be run as long as may be deemed advisable by the editors.

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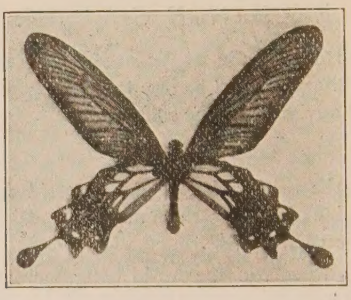

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